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7590 03/29/2007  
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EXAMINER
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LE, JOHN H

ART UNIT	PAPER NUMBER
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2863

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/29/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/737,149

Applicant(s)

NAM, YOUNG-DONG

Examiner

John H. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

***Response to Amendment***

1. This office action is in response to applicant's amendment received on 01/16/2007.

Claims 1 and 3 have been amended.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-3 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have either physical transformation and/or a useful, concrete and tangible result. The claims fail to include transformation from one physical state to another. Although, the claims appear useful and concrete, there does not appear to be tangible result claimed.

Regarding claims 1-2, merely measuring a gain of the analog filter in the DUT and a frequency characteristic by using an output of the analog filter for testing the DUT would not appear to be sufficient to constitute a tangible result, since the outcome of the measuring step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. Therefore, claim(s) 1-2 appear(s) non-statutory.

Regarding claim 3, merely measuring a boosting gain and a frequency response for testing the equalizing filter would not appear to be sufficient to constitute a tangible

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result, since the outcome of the measuring step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. Therefore, claim(s) 3 appear(s) non-statutory.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Furukawa et al. (USP 6,687,868).

Regarding claim 1, Furukawa et al. disclose a filter characteristic measuring method (e.g.), comprising the steps of: generating (test pattern generator (103, 13) generating a plurality test patterns using digital signals) an impulse signal (digital signal)(e.g. Figs.1, 4, Col.1, lines 48-51, Col.5, lines 24-32); applying the impulse signal (digital signal) to a DUT (Col.5, lines 24-32) having an analog filter (The DUT 100 shown in FIG. 1 includes analog circuits such as a low pass filter (LPF)) (Col.1, lines 30-33) through a digital channel (waveform shaper 17) (e.g. Fig. 4, Col.6, lines 6-8); and measuring a gain of the analog filter in the DUT and a frequency characteristic by using

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an output of the analog filter (digitizer 113, analyzing 21) (e.g. Col.2, lines 2-5, Col.7, lines 26-31).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. (USP 6,687,868) in view of Behrens et al. (USP 5,903,857).

Regarding claim 2, Furukawa et al. fail to teach the analog filter is an equalizing filter.

Behrens et al. teach the analog filter is an equalizing filter (e.g. Fig.2, Col.2, lines 55-60, Col.4, lines 64-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform the analog filter is an equalizing filter as taught by Becker et al. in a filter characteristic measuring method of Furukawa et al. for the purpose of providing a method and apparatus for calibrating an analog equalizer in a sampled amplitude read channel is disclosed wherein the filter's frequency response is measured and calibrated directly (Behrens et al., Col.2, lines 55-58).

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Behrens et al. (USP 5,903,857) in view of Chevalier et al. (US 2004/0108953 A1).

Regarding claim 3, Behrens et al. disclose an analog filter characteristic measuring method (e.g. Col.2, lines 55-60), comprising: applying an impulse signal (a binary sequence  $b(n)$ ) to an equalizing filter (26) by using a digital channel of an automatic tester, and then obtaining an output response of the equalizing filter and measure a boosting gain and a frequency response for testing the equalizing filter (e.g. Fig.2, Col.4, lines 34-49, Col.4, line64-Col.5, lines 57).

Behrens et al. disclose performing a differential and a fast Fourier transform (FFT) operation on the output response of the equalization filter.

Chevalier et al. teach performing a differential and a fast Fourier transform (FFT) operation on the output response of the equalization filter (e.g. [0106], [0117]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include performing a differential and a fast Fourier transform (FFT) operation on the output response of the equalization filter as taught by Chevalier et al. in an analog filter characteristic measuring method of Behrens et al. for the purpose of providing a device for the calibration and equalization of reception chains of an antenna processing system (Chevalier et al., [0045]).

9. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. (USP 6,687,868) in view of Becker et al. (USP 5,929,628).

Regarding claims 4-5, Furukawa et al. disclose a system for measuring a characteristic of a filter in a DUT employ an analog filter (e.g. Col.2, lines 2-5), said

system comprising: a digital channel (test pattern generator (103, 13), waveform shaper 17) for providing an impulse signal (digital signal) without applying a sine wave to the analog filter of the DUT (e.g. Figs.1, 4, Col.1, lines 48-51, Col.5, lines 24-32); a digitizer (131) for receiving an output signal of the analog filter so as to measure the characteristic of the filter (e.g. Col.2, lines 2-5, Col.7, lines 26-31), controller (31) for controlling the digital channel (test pattern generator 13)(e.g. Fig.4, Col.7, lines 60-63).

Furukawa et al. fails to teach a controller for controlling the digitizer.

Becker et al. teach a controller (206) for controlling the digital channel (212) and the digitizer (220)(see Fig.2A).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a controller for controlling the digital channel and the digitizer as taught by Becker et al. in a system for measuring a characteristic of a filter in a DUT of Furukawa et al. for the purpose of providing a tester that can automatically correct signal amplitude error introduced in its channel and data acquisition circuitry (Becker et al., Col.3, lines 14-17).

Regarding claim 5, Furukawa et al. fail to teach the digitizer comprises: an anti-aliasing filter for antialiasing-filtering an output of the filter; an analog to digital (A/D) converter for converting a filter output outputted from the anti-aliasing filter into digital data; a memory for capturing the digital data outputted from the A/D converter at a determined storage region; a digital signal processing (DSP) for processing in signal the digital data captured at the memory; and a digital filter for receiving the process signal outputted from the DSP and digitally filtering the process signal..

Becker et al. teach the digitizer comprises: an anti-aliasing (287); an analog to digital (A/D) converter (260); a memory (262); a digital signal processing (DSP); and a digital filter (208)(e.g. Fig.2A, Col.8, lines 20-29).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an anti-aliasing (287); an analog to digital (A/D) converter (260); a memory (262); a digital signal processing (DSP); and a digital filter (208) as taught by Becker et al. in a system for measuring a characteristic of a filter in a DUT of Furukawa et al. for the purpose of providing a tester that can automatically correct signal amplitude error introduced in its channel and data acquisition circuitry (Becker et al., Col.3, lines 14-17).

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa et al. (USP 6,687,868) in view of Becker et al. (USP 5,929,628) as applied to claim 4 above, and further in view of Behrens et al. (USP 5,903,857).

Regarding claim 6, the combination of Furukawa et al. Becker et al. discussed supra, discloses the claimed invention except the analog filter is an equalizing filter.

Behrens et al. teach the analog filter is an equalizing filter (e.g. Fig.2, Col.2, lines 55-60, Col.4, lines 64-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform the analog filter is an equalizing filter as taught by Becker et al. in a filter characteristic measuring method of Furukawa et al. in view of Becker et al. for the purpose of providing a method and apparatus for calibrating an analog equalizer in a sampled amplitude read channel is disclosed wherein the filter's



frequency response is measured and calibrated directly (Behrens et al., Col.2, lines 55-58).

### ***Response to Arguments***

11. Applicant's arguments filed 01/16/2007 have been fully considered but they are not persuasive.

-Applicant argues that the prior did not teach "applying the impulse signal to a DUT having an analog filter through a digital channel" as cited in claim 1.

Examiner position is that Furukawa et al. disclose steps of applying the impulse signal (digital signal) to a DUT (Col.5, lines 24-32) having an analog filter (The DUT 100 shown in FIG. 1 includes analog circuits such as a low pass filter (LPF)) (Col.1, lines 30-33) through a digital channel (waveform shaper 17) (e.g. Fig. 4, Col.6, lines 6-8).

-Applicant argues that the prior did not teach, "applying the impulse signal to an equalizing filter by using a digital channel of an automatic tester" as cited in claim 3.

Examiner position is that Behrens et al. disclose steps of applying an impulse signal (a binary sequence  $b(n)$  8) to an equalizing filter (26) by using a digital channel of an automatic tester (e.g. Fig.2, Col.4, lines 34-49, Col.4, line64-Col.5, lines 57).

-Applicant argues that the prior did not teach, "system for measuring a characteristic of a filter in a DUT employing an analog filter, said system comprising: a digital channel for providing an impulse signal without applying a sine wave to the analog filter of DUT" as cited in claim 4.

Examiner position is that Furukawa et al. disclose a system for measuring a characteristic of a filter in a DUT employ an analog filter (e.g. Col.2, lines 2-5), said

system comprising: a digital channel (test pattern generator (103, 13), waveform shaper 17) for providing an impulse signal (digital signal) without applying a sine wave to the analog filter of the DUT (e.g. Figs.1, 4, Col.1, lines 48-51, Col.5, lines 24-32).

### ***Conclusion***

12. Specifically Furukawa et al. (USP 6,687,868), Behrens et al. (USP 5,903,857), and Chevalier et al. (US 2004/0108953 A1) have been added to the other ground of rejection.

### ***Contact Information***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is 571 272 2275. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on 571 272 2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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March 21, 2007

  
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